ROCKS and MINERALS

Official Journal of the Rocks and Minerals Association

A Magazine for Mineralogists, Geologists and Collectors

Vol. 21, No. 8 **Whole No. 181**

AUGUST, 1946

25c

MORE FINE MINERALS

Quartz, St. Gotthard. Good group of xls. 7 x 5 ..... $ 8.00
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Samarskite, N. Carolina. Solid mass. 2 x 2¼ x 1 ..... 2.50
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Cronstedtite, Kisbanya. Xld. w. Sphaerosiderite on rock. 3 x 2 ..... 7.50
Serpierite, Laurium. Micro. xld. crusts on rock. 4 x 3 x 2 ..... 6.00
Psittacinite, S. W. Africa. Small botryoidal on rock. 3½ x 3½ 5.00
Galena, Wanlockhead, Scotland. Brilliant xls. on Sphalerite. 2½ x 2½ 2.50
Childrenite, Tavistock, England. Small xls. on ore. 2½ x 1½ 5.00
Smithsonite, Kelly, N. M. Light blue, xlline., polished face. 2 x 1½ 2.00
Arsenopyrite, Cumberland. Sharp xls. w. Scheelite. 3 x 2½ 7.50
Stibnite, Portugal. Xlline. mass with iridescent tarnish. 4 x 2 x 2 ..... 2.50
Beryl, Chester Co., Pa. Good greenish yellow term. xl. 2 x 1½ 2.00
Hematite, Cumberland. Partly botryoidal, brilliant. 4 x 3½ 3.00
Eudialyte v. Mesodialyite, Russian Lapland. Xlline. mass. 3½ x 2 ..... 3.00

Transportation extra. Terms cash with orders. Money refunded on unsatisfactory specimens returned within one week of receipt.

HUGH A. FORD

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Telephone: BOwling Green 9-7191

No lists furnished, but enquiries for specific minerals welcomed.

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PETER ZODAC

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CHIPS FROM THE QUARRY

First in Line For New Rate!

The following letter is the first and only reaction, up to press time, to our announcement of the increased subscription rate:

Editor R & M:

In view of the increased cost as announced in the July, 1946, issue of *Rocks and Minerals*, I feel that in all justice I should add another dollar to my subscription for the ensuing year. It is herewith enclosed.

Howard Syze
Yorktown Heights, N. Y.
July 29, 1946

Dr. Marie On Sick List

Dr. Stanley Marie, of 215 Walnut Ave., Revere 51, Mass., has been ailing for some time and has been ordered to remain in bed for a complete rest owing to a serious heart ailment. He would be delighted to heart from any member who would care to write him as time hangs heavy when one is forced to remain in bed. Dr. Marie is a member of the R. & M. A.

Was Your Copy of The July Issue Late?

The July issue of *Rocks and Minerals* came out very late (mailed on July 23rd) because our printers were swamped with work. Normally it comes out on the 1st of the month and it may be months before the magazine will be out on schedule. Please be patient. Some day it will be out on time!

Attention Subscribers!

The subscription rate for *Rocks and Minerals* will be increased to $3 a year on September 1st.

Up to September 1st, you may renew or extend your subscription for one or more years at the present rate of $2. Do it now!

Capt. Roy Returns to Museum Post

Just returned from India and Burma, and now on terminal leave from the Army Air Forces, Capt. Sharat K. Roy is back at his civilian post in the department of geology at Chicago Natural History Museum, Chicago, Ill.

Formerly in charge of a geological division, he has now been appointed acting chief curator of the department, it is announced by Col. Clifford C. Gregg, director, taking the place of the former chief curator, Henry W. Nichols, who retired in his 78th, due to ill health, at the end of 1944.

Dr. Roy received his commission and went into active Army service in August, 1942. Because of his museum experience as a member of expeditions to Newfoundland, Labrador and Baffinland, he first served the Army on special duties in Greenland and Baffinland. Later, he served in India, of which country he is a native, as a combat intelligence officer. By his Army service, he won United States citizenship.

Dr. Roy has been a member of the staff of the museum since 1925, serving first as an assitant curator and later as a divisional curator. He is a graduate of the University of Illinois, and earned his Ph. D. at the University of Chicago.

A REFERENCE TO JAMES F. MORTON

BY E. W. BLANK
Metuchen, N. J.

The many friends of the late, esteemed James F. Morton (1) (2) will be pleased to hear that Mr. Morton is mentioned inferentially in a short story by H. P. Lovecraft (3). The museum at Paterson is mentioned, a modest appreciation tendered of the versatility of Mr. Morton and an account given of the discovery of a significant news item in an Australian newspaper on file in the museum. This clipping discloses a clue to the unfolding of the mystery of "The Call of Cthulhu."

Mr. H. P. Lovecraft's literary reputation, since his death in 1937, has been on the increase and his works have been compared favorably by critics with those of Edgar Allen Poe.

(1) Zodac, "The Passing of a Noted Mineralogist—James F. Morton (October 18, 1870—October 7, 1941)", *Rocks and Minerals, 16 394* (1941).
(2) Lee, "Memorial of James F. Morton", *American Mineralogist 27*, 200 (1942).
(3) Lovecraft, "The Call of Cthulhu", in "Best Short Stories of H. P. Lovecraft", World Publishing Co., New York (1945).

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MINERAL COLLECTING IN INDIA

BY RICHARD V. GAINES

320 E. 57th Street, New York 22, N. Y.

Upon my arrival in India in 1943, I was at first stationed at a transit camp near Karachi. At the end of three weeks, orders came assigning me to Headquarters, Construction Division, S.O.S., New Delhi, where I spent about a month. Subsequently I was transferred to a camp about 70 miles west of Calcutta, where preparations were being made for the construction of a number of fields for B-29's, and the remainder of my year in India were spent there, in Calcutta, and at other nearby points in Bengal and Bihar.

As I had in the Middle East, I made every effort to study mineral deposits and collect specimens while in India, and met with somewhat similar conditions. However, as the country is rich in minerals, I had more luck than in Eritrea or Egypt.

At first, while in Karachi and New Delhi, I was forced to confine my attentions to jewelry stores, which are very numerous in any large Indian city, and quite different from typical American stores. They can be divided roughly into two types: those which sell gold jewelry, either solid or plated, hand wrought into bracelets, earrings, necklaces, etc., often beautifully executed, and which cater more to the trade of Indians than foreigners; and those which specialize in gems, unmounted and mounted, and which get a large share of their trade from tourists. Of course there were various gradations between the two types, and besides almost every store which sold Indian wares of any kind designed for the souvenir trade carried on a small gem business on the side.

Indian Gem Dealers Very Disappointing

These gem stores always carried large stocks of loose cut stones, including all the common varieties of precious and semi-precious stones, besides invariably synthetic rubies and alexandrites. Most of the dealers had little or no real knowledge of gems, but as their customers on the whole knew far less even, they were able to unload any old kind of stuff and make a profit. One could pore for hours over the seemingly endless packets of rubies and sapphires and cats-eyes, etc, in all sizes and qualities. I was surprised, however, to note that it was only with great rarity, and in the largest and most expensive of these stores, that one could find a few stones of first rate quality, gems such as any one can find in quantity and in finer quality by spending a few minutes looking in the windows of the better stores on Fifth Avenue. The truth is that, though India, Burma, and Ceylon together produce nearly all the world's rubies, sapphires, cats-eyes and a number of semi-precious stones, all of the largest and finest ones found are immediately shipped to foreign markets, or purchased by some of the Indian princes who hoard gems. Thus they never appear on the local market at all, which therefore has to be satisfied largely with leftovers.

One reason for this, is that in normal times precious stones bring lower prices in India than elsewhere. Unfortunately, by the time I had arrived on the scene, American troops had been in India for nearly two years, each and every one apparently bent on buying a few trinkets for his wife or girl back home. With

their full wallets, combined with an ignorance of quality and willingness in many cases to pay the first price asked for any bauble, they had caused the price of gems to become inflated anywhere from 200% to 1000% by the end of 1943, in most cases equal to or much greater than prices for the same sort of material in the U. S.

The dealers had also discovered that they could sell material which formerly had been almost worthtless, for high prices. Stones with flaws, badly cut, and off color, were represented as first class material and snatched up by the unwily G. I. By far the most popular stone of all with Americans were star sapphires, and many a fellow soldier proudly displayed to me one of these stones which was grey in color with little or no blue, and having a vestigial star, thinking he had a bargain. I also saw a few fakes made by cementing a blue background on a cabochon-cut star quartz. Many thousands of rupees worth of other out-and-out fakes and synthetics were sold. The dealers also had an annoying habit of calling any corundum stone bearing the faintest tinge of pink, a ruby, for which fantastic prices were asked. The net result of all this to me, was that I bought practically no stones, as there was little to be gained by it under the existing market conditions.

A Search For Alexandrites

I made repeated attempts to locate some genuine Russian alexandrites. Although I must have visited hundreds of shops, large and small, I never saw even one such stone. Every store had the common synthetics, and the jewelers would almost always be willing to swear up and down that their stones were actually genuine. Some of them admitted that the stones were synthetic, but then went on to say that there was no such thing as a real stone. I consider that many of these dealers were misguided rather than dishonest, as real alexandrites are so very uncommon that most jewelers haven't seen one. I did find, at different times, three fine Ceylon alexandrites, ranging in size from 9 carats to 21 carats, and which were being held for very high prices. My reason for not buying them was that I consider them to be less attractive than Russian stones. One can distinguish without difficulty between Russian, Ceylon, and synthetic alexandrites, merely by the appearance of the stones, and this test is nearly 100% effective, although of course in matters of doubt one should test the specific gravity, index of refraction, and dichroism. (Actually, synthetic alexandrite is a misnomer, as there are no true synthetics on the market. The so-called synthetics are made of fused corundum, like synthetic rubies, and are thus an entirely different mineral species). My test is as follows: The true Russian alexandrites are a reddish amethyst color by artificial light, best tested by the light from a match flame; some electric lights give off an appreciable amount of blue light, and under these, or where the artifical light is combined with daylight from windows, the red color will be mixed with flashes of green. In daylight they are a pure, soft, bluish-green color. Ceylon alexandrites are an unattractive brownish grey by artificial light, and a pretty grass-green in daylight. 'Synthetic' alexandrites are purple to reddish purple in any kind of artificial light, even with considerable admixed daylight, and with no trace of green. In pure daylight they are a light green mixed with purple, and it is almost or entirely (with some stones) impossible to get rid of all the purple color even under ideal daylight conditions. Once, at the finest jewelers in New Delhi, which was a high-priced store run by an English firm of unquestioned integrity, I was shown what they considered to be an alexandrite, mounted in a pendant with diamonds. The stone weighed 41 carats and was priced at something over $5000.; and it did have a rather remarkable color change, being ultramarine in daylight and deep purple under artificial light. I inspected it closely and noted that the stone contained inclusions of 'silk' in a strong zone with the hairs running in three directions at angles of 120° from each other—a type of symmetry which would be impossible in alexandrites, which are orthorhombic, but which is common enough in sapphires, which are hexagonal. I pointed out to the manager of the store that his stone was

almost unquestionably a fine, rather fancy sapphire (which would involve no reduction in value), but he unfortunately did not seem to appreciate my advice. Some months later when I was again briefly in New Delhi, I stopped in and was pleased to note the same stone in the store, but this time in a case with sapphires.

My first opportunity to do anything about actual mineral collecting came when I arrived in Calcutta, in which city is located the headquarters of the Geological Survey of India. There I was able to meet some geologists and get some first hand information about existing mineral deposits. As the fine mineralogical museum of the G. S. I. was closed on account of the war, I could not see it; but I was able to glean much valuable data on localities from their excellent reference library.

Bihar Mica District

Calcutta is in the middle of a huge flood-plain or delta of the Hooghly and Ganges rivers, flat as a table and covered with recent muds and sediments which are most uninteresting mineralogically. In the course of time, however, I was able to secure four days leave and planned to visit the mica producing district in Bihar, which is about 250 miles northwest of Calcutta. Bihar is noted for its mica deposits, which are centered around the town of Koderma; they supply about 75% of the world's finest grades of mica for the electrical industry. I was lucky enough to secure a letter of introduction to the American manager of the largest producing company in the district, and when I got off the train, he met me with a car and invited me to stay at his beautiful estate.

The district is altogether about 60 miles long and 20 miles wide, and consists geologically of mica schists which are intruded by countless pegmatites. There are hundreds of producing mines, most of them quite small. Two large companies, one Indian and one English, dominate the field and own the largest mines and factories. Most of the mines are operated unscientifically and in the crudest fashion, and produce only until they become so deep that enough water flows in to require pumping; but the larger mines are developed and run by competent engineers, and many of them reach considerable depths. Many of the pegmatite dikes are remarkably consistent in their length and width with increasing depth; there is one mine over 600 feet deep, and several over 500 feet deep. Nearly all mica operations are carried on by underground mining, and I saw none of the open pits such as are characteristic of most pegmatite operations in the U. S. Mica mining in Bihar has some of the flavor of a new gold camp; many an unprepossessing outcrop has turned into a mica bonanza in depth, and the average quality in the field is so fine and the price so high, that the discoverer of a good mine can make a fortune almost overnight.

Through the kindness of my host, a car was put at my disposal and, accompanied by an Indian engineer, I examined six of the mines. These were selected as typical, for one reason or another, of the region. The pegmatite dikes which were being mined were, in most cases, of the type which would be classed as homogeneous pegmatites: that is, the normal pegmatite minerals which make up the mass of the dike are scattered in a fairly even fashion across its width, as opposed to heterogeneous pegmatites, in which most of the quartz, mica, and feldspar are segregated, often in large pure masses, in definite zones across the width of the dike. The mines are first developed in levels, and the rock is then extracted by drilling and blasting, a process which seems to spoil a much smaller proportion of the books of muscovite than might be supposed. The crude mica is picked out of the broken material and sent to the surface in bags, where, in preliminary sorting, about 85% is rejected. Later, the sorted mica is trimmed, split, graded, and packed, in which processes a further 80% or so by weight goes to the scrap heap.

This final sorting is done in central factories which usually serve a number of mines. It is done largely by women and children, who develop a remarkable degree of skill in the work. These people can pick up a handful of splittings averaging about two thousandths of an inch

in thickness, and faster than the eye can follow, relying entirely on the feel of the thickness of each splitting, they sort them into compartments, each of which differs from the next one by a thickness of only one quarter of a thousandth of an inch. Checks periodically made with delicate instruments for measuring thickness, indicate a percentage accuracy of around 99%. One especially skilled woman I watched, using only a special sharp knife, could take a splitting one thousandth of an inch thick, and further split it into eight parts, each almost too thin to see. Near all the factories there accumulates great piles of waste material, sometimes nearly an acre in extent and ten feet deep; these glistening heaps are a characteristic feature of the countryside.

The Bihar mica is muscovite, and in the trade it is generally called "ruby mica." This stems from the reddish amber color of the books by transmitted light; it approaches very closely in color the daylight filter used with type 'A' Kodachrome film. It is freer from stains, waves, cracks, bubbles, inclusions and any of the other many common mica defects, than that produced in any other section of the world, and it is this geological factor coupled with its abundance, rather than the cheap (and inefficient) labor that accounts for India's pre-eminence in the mica field. Each mine produces mica which generally is consistently within a certain size range, or less; thus a mine which produces trimmed sheets 1" x 2" or less, will hardly ever produce a book which will trim to 4" x 6". One or two mines produce extremely large, thick, and clear books, which of course bring very high prices. One beautiful trimmed sheet I saw was about 2½ feet by 4 feet and one inch thick, and flawless. Occasionally interesting inclusions are found in the mica; besides garnets, I saw a number of specimens containing clear blades of tourmaline, grey-green in color and ¼" by 4" in size, but very thin. For the rest, the mines are singularly poor in rare-element pegmatite minerals, and are also innocent of vugs and cavities. A careful examination of many dumps and the six mines I actually entered, revealed only the following minerals: quartz, microcline, albite, muscovite, biotite, garnet, black tourmaline, apatite, and beryl (rare). No unusual or finely crystallized minerals were found, other than the mica.

The east end of the district produces a little tantalite and columbite, but I was not able to get there. One pegmatite near where I was staying was reported to have produced, nearly thirty years ago, some choice crystals of columbite and monazite, and uraninite in fine altered cubo-octohedrons up to 1" on a side. It was several hours hike through scrub jungle from the nearest road to the locality, and although I made, at several months' interval, two trips there, the mine was abandoned, the workings caved, and the dumps produced nothing. I did find, though, in another very small dike nearby, some lepidolite, which was the first reported occurrence of this mineral from the Bihar mica district.

Rajputana Mica District

In the state of Rajputana, there is another region of pegmatites, which produce a great deal of mica besides large quantities of beryl, some tantalite, and columbite. Many rarer minerals are known to occur there. The mica comes in fairly large sizes, but is almost invariably stained, and thus its use is limited and its price much lower than that of the Bihar mica. It is muscovite, and the staining is caused by oxides or iron and manganese; these stains are generally in reticulated patterns and spots of bright orange, red, brown, and black and they make spectacular specimens. I had always hoped to visit this region, but it was a two day's trip each way from Calcutta and I was never able to secure the necessary leave. One mine in this district produced a few magnificent specimens of pitchblende, of which I secured some small pieces; one piece I saw in the G. S. I. offices was about 4" x 7" x 3" and made up entirely of masses of black pitchblende, vermillion gummite, and yellow uranophane, in colors far more brilliant than material of a somewhat similar nature which is found at Grafton, N. H., or in North Carolina.

Madras Mica District

In Madras state there is another mica district, which is quite small. The mus-

covite it produces is of beautiful quality, of a clear light green color, and sometimes occurs in large sheets.

Indian School of Mines at Dhanbad

I made every effort to locate other mineral collectors in India, in the hope of being able to exchange specimens and get further information. But I had no luck on this score; people in India are simply not interested in the type of activity which would require scrabbling around old mine dumps and making long trips merely for the sake of securing specimens. I did succeed in making two visits to the Indian school of Mines at Dhanbad, a town just inside the state of Bihar in India's most important coal mining district. The school has a small museum which, however, contained far less Indian specimens that I had hoped. Head of the geology department was a Dr. Roy, who showed a keen interest in mineralogy and gave me such help as he could. He was, incidentally, instrumental in describing an interesting occurrence of a mineral that is probably new, and has been named, in his honor, Royite; it is a brownish bladed crystalline mineral with very pronounced cleavage which occurs in veinlets in slate in some of the coal seams near Dhanbad. In composition it approaches quartz, with over 94% SiO_2 content, although of course quartz is not known to have cleavage. But more work needs to be done on it before its nature can be definitely established. I secured some specimens. I noted in the museum some pieces of cleavages of a clear, water-white barite, from Betamcherla in Madras State, where there is a barite-producing district. Later I wrote to the mining engineer who had supplied the specimens (he was a Indian, but a fellow alumnus of mine from the Colorado School of Mines) about obtaining some of the material; I also thought there might be a possibility of developing a market for optical barite, if it was sufficiently plentiful. He replied that clear barite crystals were not common, but he sent me some fair cleavages about 1" x 3". He also described a single clear crystal he had in his posession which measured 4" x 5", and which must have been quite remarkable.

Jaipur Visited

In August, 1944, I secured three weeks leave, which I spent with a companion hiking and visiting the famous sapphire mines in the Kashmir Himalayas. (This locality will be described in a later article). Six weeks after my return from this trip, orders came for me to be returned home on rotation, and I left for Bombay, which was the port of embarkation. On my way there, I contrived to spend two days in Jaipur, capital of the native state of the same name in Rajputana. The Maharajah of Jaipur is one of the wealthiest, yet one of the most progressive of the Indian Princes. He has a fabulous collection of gems, which is kept locked away in a great stone castle on a nearby hill, and which less than a dozen outsiders have ever seen; he himself sees it only once a year on a day specially set aside. His city is not only one of the most beautiful and interesting in India, but it is also the center of the gem-cutting industry. This town was off the beaten track for American soldiers, and prices for jewelry there were lower than in the large cities, of which I took full advantage. Besides a number of pieces of dress jewelry, I invested in some crystals of ruby of fair quality, and some choice single and twin crystals of fine gem spinel, which I picked out of a large lot. Upon my return home I was surprised and pleased to note that my spinels fluoresced a brilliant red, similar in color to the rubies, under a Mineralight or purple-X bulb, a fact I have not seen noted in any articles on fluorescence.

The gem cutting industry in Jaipur was operating on a somewhat reduced scale, as the chief source of supply for rough stones, Burma, had been cut off for nearly three years. Nevertheless, I went through several factories' and observed the manufacture of enameled brass and silver ware, for which the district is famous; the cutting of facetted stones, and drilling of sapphires and rubies for beads. All methods used were quite primitive, but the cutters were all apprenticed to the trade practically from infancy and had become extraordinarily skillful. The fact remains however, that

none of their work approaches the standards of first class cutters in New York, Paris, Antwerp, or Amsterdam. Indian cut stones almost never have geometrically perfect faces and angles, and their cutting is considered, on world markets, 'native' and inferior. The difference in quality is easily evident to those who have had an opportunity to compare the two types of work.

Bombay and Its Zeolites

When I finally arrived in Bombay, I found that I would have to wait for two weeks at a transit camp near the village of Kalyan, which was about 30 miles outside of the city on the way to Poona. Poona is a renowned locality for zeolites; magnificent groups of large glassy crystals of apophyllite, heulandite, etc., often in delicate pastel shades of pink and green, have been found near there. But no leaves, even for one or two days, were being given and I was unable to make the trip. I did get to Bombay a number of times, and there I made the acquaintance of the professor of geology at St. Xavier's college in Bombay. He was very familiar with zeolites (which abound in the region) but knew nothing about the Poona occurrence, which seemed to me most strange. Later he made inquiries for me, the eventual result of which pointed to the probability that the zeolites referred to had all been found during a relatively short period of time during the construction of the Bombay-Poona railway many years previously; they had been found in basalt and trap along some of the railway cuts and tunnels, the exact location of which is not now known; and most if not all of them had been collected by one or two enterprising individuals and shipped out of the country to mineral dealers in Europe and America.

Bombay itself is on a peninsula largely composed of basalt. In the course of digging the foundations for buildings, and making street excavations in the city, many fine zeolites were brought to light. Mr. Jaime Ribiero, who for many years was superintendent of the Bombay street railways, was thus in charge of much of this excavation work. He was an avid mineral collector, and in the course of time accumulated a very large and fine collection of specimens, mostly zeolites and calcites, from Bombay. This was facilitated for him in that all his foremen had instructions to look out for cavities, upon the finding of which he was to be notified; also, he had no competition. After his death in 1938, the cream of his collection was donated to a university in Poona, but his widow and two sons, who are living in Willingdon, a Bombay surburb, still keep some tons of material in large wooden boxes stacked in their garage. I made their acquaintance, and had an opportunity to inspect some of this material. One of the commonest of the minerals represented was laumontite, which occurred in large crystals and groups, but all this material has suffered from the damp Bombay climate and has largely decomposed so that the crystals, when touched, fall into a white powder. Much of the material has also suffered from poor packing and corrasion from moving around. Still, there is a very large amount of material and by picking it over carefully, I don't doubt that some choice specimens could be found. Mrs. Ribiero kindly gave me some fine apophyllites, and some scolecites in unusually thick and long, well terminated needle-like crystals superior to any other specimens I have seen of these minerals. She would like to dispose of the remainder of the specimens to some collector or museum, but because of its great bulk and the shipping expense and her inability to sort out the worthless specimens which make up 75% of the material, it seems more likely that the collection will just continue to disintegrate in its present resting place, until some day when that space is needed for something else, and it will be thrown out.

Agate Pebbles at Kalyan

The Kalyan transit camp was a group of brick barracks which had been built for the British army two years previously. Around the camp were the remains of many piles of gravel, which had been used by the contractor building the camp for concrete aggregate; he had dredged it from a creek close by. I noted a number of whitish pebbles in the aggregate and inspected some of the piles. It turned out that these pebbles were either greyish or

bluish banded agate nodules, or else compact bladed aggregates of a zeolite which I took to be natrolite, with the blades usually several inches long. The agate and natrolite together made up about 15% of the concrete aggregate. Within a mile of the camp, there were a number of erosion remnants in the form of mesa-like mountains composed of basalt flows, unquestionably the source of these minerals. The nearest of these mesas was about 1500 feet high. That particular section of the terrain was for some reason out of bounds, so I could not inspect them at first hand. It was, nevertheless, further evidence of the fact that in that section of India, which is covered for hundreds of miles with basaltic flow rocks, there is a virtually untapped and virgin area of zeolites and agates, which should be a collector's paradise.

On November 2nd, 1944, our group was alerted, and on the 4th, we sailed aboard an army transport for home.

Editor's Note: If any reader is personally familiar with the Poona localities, we would appreciate an article on them.

ILFELD, GERMANY, MANGANESE OCCURRENCE

One of the many interesting localities in Germany are the manganese deposits at Ilfeld in the Harz. The locality is especially noted for its very fine manganite specimens.

Location

Ilfeld is a pretty little village (a summer resort) about 5 miles due north of the city of Nordhausen. Both Ilfeld and Nordhausen are in the southeastern part of the Harz Mountains, The Harz Mts., the northernmost mountain-chain in Germany, are 56 miles long and 18 miles wide, Brocken (3740 ft.) is the highest peak. Ilfeld is in approximately the central part of Germany.

Geology

The manganese veins of Ilfeld in the Harz Mts. occur in a hornblende porphyrite mass. The veins are for the most part only a few centimeters thick and usually grow poor at 12 meters; only in exceptional cases have they been followed down as far as 60 meters. Their filling consists of manganite, pyrolusite, varvicite, braunite, hausmannite, psilomelane, and wad, besides barite, calcspar, brownspar, and manganesespar(1).

Mineralogy

Among the minerals known from the locality are:

Barite: small tabular white crystals with manganite and other manganese minerals.

Braunite: crystallized and massive in veins traversing the porphyry.

Calcite (calcspar): In cleavable masses.

Dolomite (brown spar): in brownish cleavable masses.

Gypsum (Satin spar): fibrous masses of remarkable beauty which have long been cut cabochon by German collectors.

Hausmannite: Occurs in fine brownish-black crystals and compact masses, in porphyry, associated with braunite and other manganese minerals.

Manganite: fine groups of lustrous black vertically striated crystals with barite crystals. It was this mineral which has made the locality famous as it occurs in abundance and of great beauty.

Psilomelane: botryoidal and stalactitic masses.

Pyrolusite: In nice crystals and masses. Also occurs in pseudomorphs after calcite.

Rhodonite (Manganese spar): In pinkish masses.

Varvicite: an altered manganite, approaching wad in composition.

Wad: in black earthy masses.

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1 The Nature of Ore Deposits, by Dr. Richard Beck (translated and revised by Walter Harvey Weed). McGraw-Hill Book Co., New York, 4th ed., 1909, p. 199.

MINERALS FROM A VERMONT ASBESTOS QUARRY

BY CLIFFORD FRONDEL

Recently, Dr. E. L. Jacobs, State Geologist of Vermont, exhibited at a meeting of the New York Mineralogical Club several remarkably fine specimens of crystallized idocrase from a new locality in Vermont. Early in May of this year the writer and a small party visited the locality in company with Dr. Jacobs. The idocrase is found in a serpentine rock quarried for its chrysotile content by the Vermont Asbestos Company (Ruberoid Corporation). The quarry is located near Eden Mills about 20 miles north of Morrisville, the closest town where hotel accomodations can be had.

The minerals which are found here are of two general types: those occurring as crusts along slip planes in the serpentine, including chrysotile, calcite, brucite and abundant crusts of the rare minerals pyroaurite and artinite; and minerals composing a vein-like body of garnet-idocrase-diopside rock which locally cuts the serpentine. This latter rock contains cavitities partly or completely filled with calcite into which project well-formed crystals of grossularite, idocrase, diopside and, less frequently, prehnite, leuchtenbergite and other minerals. The occurrence has many points of similarity to the diopside, idocrase and garnet localities in serpentine in the Black Lake area, Quebec, described by Poitevin and Graham.* A brief description of the more interesting minerals found at the locality follows.

Artinite. Occurs as white radially fibrous botryoidal crusts and groups of acicular crystals on slip planes in the serpentine. Artinite has previously been found in the United States only at Hoboken, N. J. and Luning, Nevada.

Clinochlore. Occurs as irregular granular masses of blackish green color imbedded in the garnet-rock. A fine specimen exhibiting large free crystals projecting into a cavity and closely resembling the well-known specimens from Tilly Foster, N. Y., was shown by a local collector.

Diopside. A constituent of the massive garnet-rock, locally found as nicely formed, colorless or white, slender prismatic crystals projecting into cavities.

Grossularite. This species is the major constituent of the massive garnet-rock, and locally occurs as drusy crusts lining cavities. The color varies from very pale yellowish or greenish brown to honey brown and brown. The crystals are often zoned and separable into shells of different color. The outermost shell usually is honey brown and translucent. Crystals range up to an inch across and are dodecahedral in habit although often distorted and modified by trapezohedral faces. Toward the contact with the serpentine the yellow-brown garnet-rock is spotted with tiny, bright green embedded crystals of a garnet with an index of refraction close to grossularite.

Leuchtenbergite. A chlorite with optical properties close to this iron-free variety of clinochlore occurs as hexagonal plates in cavities in the garnet-rock. Color pale brownish green and yellowish brown.

Prehnite. Found as snow-white crystalline aggregates of typical habit incrusting garnet and idocrase in cavities.

Pyroaurite. This rare mineral, previously known * from the United States only as a single small specimen from Blue Mont, Md., occurs abundantly as thin crusts on slip planes in the serpentine. Color pale yellowish brown and creamy brown. The mineral occurs as cleavable platy aggregates with a slickensided appearance and resembles slip-fiber chrysotile. It is very soft, separable into tender, inflexible fibers, and effervesces in dilute acid.

Idocrase (vesuvianite). Occurs abundantly as embedded prismatic masses of a greenish gray to green color in the garnet-rock, especially in coarse-grained parts of this rock adjacent to cavities. Lustrous,

*Poitevin, E. and Graham, R. P. D.: Geol. Surv. Canada, Mus. Bull., No. 27, 1918

*Frondel, C.; Amer. Min., vol. 26, 295, 194

translucent to transparent crystals of a dark oily green to brownish green color project into cavities. Crystals are short prismatic with the first order prism and pyramid (110) and (111) as dominant forms and often are complexly modified by ditetragonal prisms and pyramids and the second order prism (100). Some crystals are distorted and simulate orthorhombic symmetry. The size ranges up to 2 inches in length and a half inch or so across a prism face but most individuals are considerably smaller. Specimens showing crystals embedded in white calcite are very handsome and are superior to the best specimens of this species known to the writer from other localities.

DRIFT OR FLOAT COPPER

BY FRED G. KNOWLTON

Barksdale, Wisconsin

Drift or float copper was found in Upper Michigan several years before 1844 at which time the white man found copper on Keweenaw Peninsula. Many (mostly shallow) mines have been found in Upper Michigan and were probably worked by an earlier people than the Chippewa Indians who did no mining and used little copper for weapons or tools. There is a boulder of copper weighing two tons in the U. S. National Museum, Washington, D. C., which came from the Ontonagon River, some 10 or 12 miles up stream from the mouth where the present site of the village of Ontonagon, Mich., is located.

Another boulder of copper weighing 4,836 lbs. is on exhibition on the campus of the Michigan College of Mining and Technology, Houghton, Mich. This boulder was found on Schmidt's farm, Laminga, Mich., about 10 miles west of Houghton.

Several mineralogists have expressed the theory that copper float found in Wisconsin came from Houghton, Mich., by glaciation, but Houghton is nearly east of northern Wisconsin. On the rocks of Porcupine Mts., in Upper Michigan on the south shore of Lake Michigan, there are plenty of glacier striations which run at nearly right angles to the direction which they would have to be to bring drift from northern Michigan to northern Wisconsin.

I recently ran across an article in a Canadian, 1916, archaeological report (Twenty-eighth annual report, p. 30, under "Copper"), part of which read "Early travellers speak of native copper being found in many parts of the continent. This evidently was glacial copper, carried down in those ages long past, about which we know so little, by means of glaciers, from these immense copper fields situated northwest of the Hudson Bay, on the Copper Mine River, where, according to Tyrrell, great boulders of native copper are to be found on the surface."

This sounds far more plausible. Much of the soil around the Chequamegon Bay region of northern Wisconsin (on which is Barksdale) is heavy feldspathic red clay which was laid down during glaciation in the period when Lake Duluth covered this country and Lake Superior was filled with ice. Where the clay is washed down along stream banks and along the shore of the bay and on shores of Lake Superior, we often find float copper in the gravel. A neighbor of mine found five small pieces of copper in a narrow strip of gravel which covered his piece of land. Another man, while digging a ditch for a water pipe, from house to barn, found a. 6 lb, piece of float copper. Another man, digging a basement for a new house, through the clay to brownstone (sandstone), in one corner found five pieces of float copper. Still another man found a 5 lb. piece in a narrow strip of gravel in red clay. Another piece of float copper was found in a vertical crack, in a brown-stone cliff on the shore of Chequamegon Bay. This crack ran into a horizontal crack some 25 ft. from the surface of the ground. This horizontal cap of stone over the vertical crack would prevent any gravel from the surface get-

ting into the crack but it contained gravel and one small piece of float copper. All these finds were made in the vicinity of Barksdale, Wisc.

Several pieces of float copper have been found in gravel pits. In Fact at Drummond, Wisc., the County had a rock crusher in a pit and a hunk of float got in the crusher which pretty near ruined the crusher before it could be shut down and the float removed; because of its malleability copper cannot be crushed.

One specimen which I would liked to have seen, was a piece of float copper that had a small dish or bowl hanging on one side which had been beaten out of the chunk but never cut free. This specimen was later sold to a Chicago museum. This was found on a farm about 2½ miles from Washburn, Wisc. by Mr. Jacobson, father of the present owner of the farm on which the copper was found.

There have been found some ten prehistoric copper pits on Isle Royals in Lake Superior where nearly pure metallic copper was mined many years ago. These mines are pretty well scattered over the island and as the island is about 45 miles long it would make a good day's hike to cover them all.

A pal of mine, Mr. J. Pieterek, of Ashland, Wisc., has a piece of float copper about 5" through, 7¼" long by 6" wide that weighs 42 lbs. This was picked up by the teeth of a road scarifier while working on a road near Drummond in Northern Wisconsin.

I have one copper arrow head, made from a piece of sheet, probably seam fill, rolled into a cornucopia, about 2" long. The open end was where they inserted the shaft of the arrow.

This arrow head was found by C. C. C. boys working on a road near Houghton, Mich., and being of copper I pulled strings to get it.

Recent Find of Copper Float in Writer's Collection

A 110 lb. mass of native copper was found on the beach of Lake Superior on Skiskowitt Bay, near Cornucopia, northern Wisconsin, Sunday morning, May 5, 1946, by Kenneth Ewer, 11 year old boy of Ashland, Wisc. The boy was walking down the beach when he came across the copper float. This mass is 26" x 19" by 2" to 3" thick, and weighs 110 lbs. One end of the mass is bent over about 8 inches. Under this fold and entrapped are two small pieces of rock—one a granite and the other basalt. This mass of copper, which received a nice write-up in the *Ashland Press*, May 9. 1946, is now in my collection as I purchased it.

SHELDON QUARRY, RUDEVILLE, N. J.

BY PETER ZODAC
Editor Rocks and Minerals

Another limestone locality north of Franklin, N. J., is the abandoned Sheldon quarry in the little hamlet of Rudeville. The quarry is almost hidden from the road and is apt to be passed unless one knows of its existance. It is 100 feet north off a dirt road which in turn begins 200 feet west of the road leading to the Windsor quarry. It has been about 7 years since the writer last visited the locality and at that time one or more houses were in the process of being erected along the dirt road so that the quarry now may be even more hidden. The quarry is roughly about 150 x 300 feet in area, and full of water.

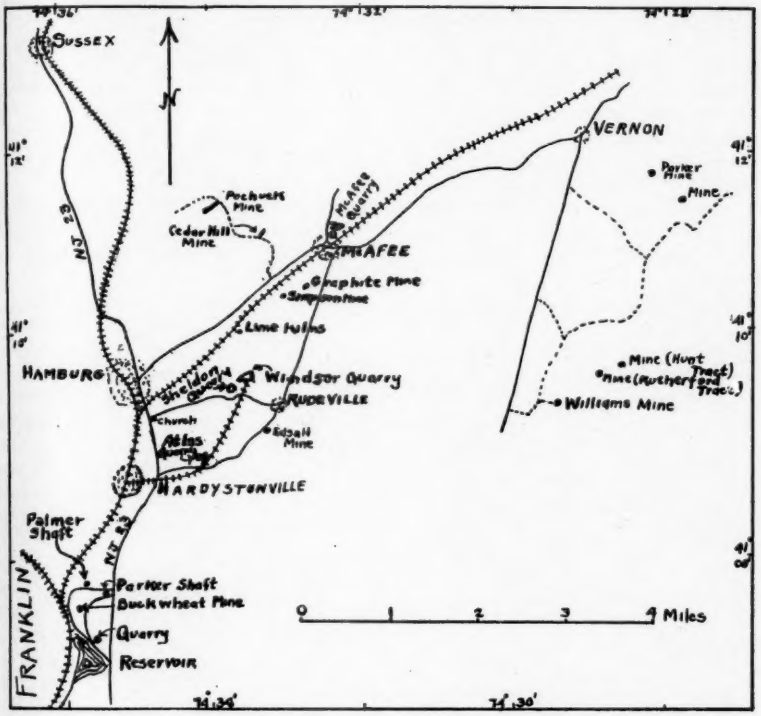
According to Mr. E. A. Westervelt, of Hamburg, N. J., the last superintendent of the Rudeville quarries, the limestone was burnt for lime at the lime kilns situated along the railroad, ¾mile to the north.

Location

Rudeville is a little hamlet in northeastern Sussex County (in the northern part of the state) about 3 miles northeast of Franklin.

MINERALOGY

Not many minerals can be found at the locality due to the fact that the quarry is full of water, but at the small dump at the limekilns many good specimens occur; these of course had been brought



Sketch map showing Sheldon quarry, lime kilns and other localities north of Franklin, N. J.

from the quarry. Among the minerals found are:

Arsenopyrite: good crystals.

Calcite: white, cleavable masses with augite and scapolite.

Fluorite: purple incrustations on limestone.

Graphite: small flakes in limestone.

Phlogopite: bronzy crystals in limestone.

Pyrite: small grains with augite in limestone.

Pyroxene (Augite): good crystals, dark green in color some quite large; also in large dark green cleavable masses.

Pyrrhotite: small metallic dark brown masses in limestone.

Scapolite: large greasy, grayish-green crystals in limestone, often associated with augite.

Titanite: chocolate-brown, small but good crystals in limestone.

Coral Limestone Near Louisville, Ky.

Louisville, pop. 320,000, is the largest city in Kentucky. It is situated on the Ohio River in the northern part of the state. The river here descends, by rapids, 26 feet in a distance of 2 miles.

Limestones exhibiting numerous horn corals are found in the Louisville area. These are, however, not in large numbers. Some of this limestone outcrops along the Ohio River adjacent to the city. In this grayish coral limestone, nice small crystals of pyrite may sometimes be found.

POST-GLACIAL LAKES IN THE SUSQUEHANNA VALLEY

BY ARTHUR E. YOUNG

Unadilla, N. Y.

If one drives along the Susquehanna River through Cooperstown or Oneonta, N. Y., he cannot fail to be impressed by the many gravel pits along his route. Some are close to the highway, and still others can easily be seen on the distant sides of the valley. When one stops to examine these workings, three things stand out remarkably.

First is the fact that the material is of all degrees of fineness from clay, through sand, to rounded boulders of huge size. Secondly, at fresh cuts, the material is usually bedded at a steep angle, with coarse stony beds alternating with beds of the finest sand. Thirdly, at the top of the workings one usually finds a very level flat, which may be from an acre to several square miles in area. These are typical of sediments deposited in standing water.

It is well known that the ice sheet of the Pleistocene Era left moraines which formed temporary dams in most of the river valleys of New York State. The notable one was in the Hudson Valley, between Cornwall and Peekskill. It held back a vast lake which extended up beyond Albany. In that lake were formed the clay deposits which are the basis of the brick industry in that region. At the same time, there existed in the Susquehanna Valley a series of lakes which are less well known.

The principal one was the Wilkes-Barre-Scranton Lake, which was held back by the terminal moraine of the ice sheet. This moraine crosses the Susquehanna River near Wilkes-Barre, Pa. the valley being choked from there south to Shickshinny Gap. The lake extended some 20 miles north to Scranton, Pa., and between 30 and 40 miles northwest toward Towanda, Pa.

Another smaller moraine south of Towanda impounded the Binghamton Lake, which extended in a broad arc up past Binghamton, N. Y., to Great Bend, Pa., with arms extending up the Chemung and Chenango valleys. The former water surface, or "water plane", is marked by terraces which are at an elevation of 945 feet at Binghamton.

About two miles east of Great Bend another moraine forced the river over a low rock wall where it has cut a narrow gorge. This is known as Red Rock Gorge, and it is about 300 feet wide and 1000 feet long.

The entire stretch of valley from Great Bend to Lanesboro, Pa., is quite scenic. The valley here is narrow and deep, the nearest thing to a canyon in this part of the country. The moraine at Great Bend still remains undisturbed, and its tumbled ridges and kettles make an interesting study. And while the Red Rock Gorge is small, one views it with renewed interest by understanding the manner of its origin.

Northward from Lanesboro, interpretation of the terraces is complicated by the fact that the great weight of the glacial ice had depressed the land to an increasing extent as we proceed up the valley. Thus, terraces which were originally level are no longer so, because the land has been reelevated since the ice load is gone. In addition, the valley was occupied by a tongue of ice over which flowed a large river. So we have materials deposited simultaneously by ice and by flowing water. Depression of the land meant that the gradient of the river bed was not as great as it is now; so the water moved more slowly, even though its volume was many times greater than it is now. For these reasons the exact nature of the terraces in the upper part of the Susquehanna valley is not very clear.

In the past two years I have made a study of the terraces and moraines of the upper Susquehanna valley. The types of soil, the manner of bedding in the various deposits, and the distribution of the deposits, all have important bearing on the problem. Altitudes of the terraces were correlated with the aid of United States Geological Survey topographical maps. I am convinced that the valley

above Lanesboro was occupied, at one time, by four lakes which were impounded by a series of small moraines of rather temporary nature.

The first of these moraines is at Oakland, Pa., near Lanesboro. This raised the water plane to 1010 feet. The next is only a mile north of Lanesboro, at the mouth of the Cascade Creek, and it raised the water plane another 40 feet. The level of the water in this lake is marked by terraces which were originally horizontal, but have been elevated to 1060 feet at East Windsor, N. Y., 1070 feet at Harpursville, N. Y., 1080 feet at Afton, N. Y., and 1100 feet at Unadilla, N. Y. In many places the highway runs along on the top of the terraces, and at others it runs along the foot of the terraces, and they can be seen as a very prominent part of the landscape.

At Wells Bridge, five miles up river from Unadilla, another moraine elevated the water plane to 1140 feet. Here again the subsequent tilting is evident, as the terraces rise gradually to 1160 feet at Oneonta, N. Y., and 1180 feet at Colliersville, N. Y. A few miles further, at Portlandville, a fourth moraine held the water up to 1220 feet. Tilting has raised the terraces to 1240 feet at Clintonville, 1250 feet at Hartwick Seminary, and 1260 feet at Cooperstown. The entire city of Cooperstown is built on a broad terrace at the foot of Otsego Lake.

Two or three very small lakes occupied the valley of the Cherry Valley Creek. They account for the beautiful broad fields along the Cherry Valley, which were a major factor contributing to early settlement of that valley.

All of the lakes mentioned here were shallow, the deepest being only 250 feet. And all of them existed only long enough for the retreating ice to build up its marginal and frontal deposits in them. The terraces were built almost entirely by the ice or by supraglacial streams.

After these morainic barriers were washed away, there still remained a lake held back by the moraine at Great Bend, Pa. Since the outlet there discharged over a rock barrier, it was eroded much more slowly than the others. So in the final stage only this one lake remained. Its headwaters were at Oneonta, N. Y., where the Susquehanna River and Otego Creek have built a broad low delta. This extends down the valley almost to Otego, and it has many old river channels crossing it. It is at an altitude of 1060 feet, which corresponds to 950 feet at Great Bend, showing how much the land has been tilted. Between Oneonta and Otego the river goes through several meanders which are entrenched from 10 to 15 feet below the surface of this old delta. They can be viewed nicely from the highway about 1½ miles east of Otego.

The Unadilla River also built a delta at Sidney, N. Y., at an altitude of 1020 feet. The Sidney airport is on a remnant of that delta. For two miles west from Sidney, the Delaware and Hudson Railroad runs through a broad marshy channel which was occupied by the Susquehanna River at that time.

The terraces described in this article are of tremendous value to us at the present time. They form vast natural reservoirs of water, so that a well can be dug almost anywhere to furnish sparkling pure water. On their tops is some of the best farm land in this State. The Delaware & Hudson, Lackawanna, Erie, Lehigh Valley, and other railroads have found them to be level roadbeds, graded by nature, with plentiful gravel nearby for necessary fills. Gravel and sand is available for a myriad of uses, and even the clay deposited in these ancient lakes has been made into bricks.

REFERENCES:

New York State Museum Bulletin #256—The Susquehanna River in New York and Evolution of Western New York Drainage, by Herman L. Fairchild

Annals of the Association of American Geographers, Vol. XXXV, September 1945, Pages 78-119—Glacial Diverson of Drainage, by O. D. Von Engeln

?? THIS 20% LUXURY TAX ??

BY LLOYD M. DEMRICK

"Please include 20% federal tax" is becoming a more frequent request in the ads of mineral dealers. Some of them require no tax, some specify only certain minerals, and others apparently include everything they list. Such items as rutile crystal groups and glass-mounted transparent slabs for projection were included as being taxable in recent ads. How come?

Will those dealers who do not collect this 20% 'Luxury" tax on part, or all, mineral sales be subject to reprisals by the Collector of Internal Revenue later on?? Are those dealers who do collect the tax penalizing the hobbyist unlawfully; are they setting a precedent whereby in the future ALL minerals will fall into this "Luxury" category??

This is an important matter to every person in the mineral collecting or polishing field so lets analyze this potentially costly situation.

That hobbies (except maybe those of a dissipation class) are desirable for the individual, as well as for the national welfare, is undeniable. A people who have hobbies, whatever they may be, are a busy and happy people, and because they are busy and happy they have little time to get into mischief.

Let's see what the law itself says about this tax.

> Sec. 320.32 Pearls, Precious and Semi-precious stones, and imitations thereof.—The tax is imposed on the sale at retail of all pearls and precious or semi-precious stones, regardless of whether such pearls, precious or semi-precious stones are real or imitations, cut or uncut, whether drilled, mounted. or matched, and whether temporarily or permanently strung and whether with or without clasps. Beads are subject to the tax as jewelry if the beads are strung ready for use. The sale of loose beads is not subject to the tax unless such beads are pearls, precious or semi-precious stones or imitations thereof.

The words we are mostly interested in are "Precious or Semi-precious" and "Uncut"—the "Uncut" in particular.

Seeking information the writer called on the San Francisco office of the Collector of Internal Revenue and asked what that 'Uncut" meant. Nobody there would commit themselves, but they did consult Webster's Unabridged dictionary and found the following definitions under the four terms; — GEM, GEM-STONE, PRECIOUS and SEMI-PRECIOUS.

> GEM 1. a, Any jewel, whether stone, pearl, or the like having value and beauty that are intrinsic and not derived from its setting. A precious or, sometimes a semi-precious stone cut and polished for ornament. b, A semi-precious stone of value because carved or engraved, as a cameo or intaglio.
>
> GEM STONE. Any mineral or petrified material which can, when cut and polished, be used in jewelry.
>
> PRECIOUS.—5, Gems. a. Of highest value commercially because of beauty, rarity, and especially hardness;—chiefly in phrase PRECIOUS STONE. Diamonds, rubies, sapphires and emeralds are always ranked as precious stones, sometimes, others, as alexandrite and cats-eyes, are included. The pearl, altho not a stone, is ranked as a precious gem because of its beauty and rarity. b, Designating a superior or relatively more valuable variety of gemstone as, PRECIOUS GARNET, OPAL, etc.
>
> SEMI-PRECIOUS. Designating gem stones of less commerical value than those called precious. such as the amethyst, garnet, jade. and tourmaline: specif;-less than 8 in hardness.

Now let us leave Webster's (the law itself says nothing) for a spell and set up our own analysis of what an uncut stone is.

1. The first and basic consideration of a cut stone is that it be attractive: maybe because of color, pattern, texture, brilliancy or any combination of these or other minor considerations. *All other qualifications are subordinate to this one of beauty.*
2. Hardness and toughness are important because of wearing qualities but are in no way controlling factors—take Malachite for instance: certainly the tax collector would not scorn cut pieces of that even tho it is very soft, relatively speaking.
3. Rarity. This has no great bearing on market values; take a couple of extreme samples, the common diamond occurs in many places in the world and in quite some quantity while a really rare one is Benitoite, found sparingly in only one spot in the world. The diamond, while thousands of times more plentiful is still a great many times more valuable than the Benitoite.
4. Popularity. Here is a factor as far as relative price is concerned; however, we are not analyzing prices.

The precious or semi-precious classification is purely a commercial angle in which we as hobbyists have no interest. Also, as hobbyists, the actual Rarity factor would be right up with the Beauty factor if not ahead of it, and the Hardness of a stone would be merely one of its technical characteristics.

So what a gemstone is boils down to the one factor—Beauty. All other considerations tho important, are secondary qualifications.

Now where are we? Does that mean that the tax applies to ALL minerals that could conceivably be cut and polished to a greater or lesser degree? Was that the intent of Congress?

What about all the magnificent specimen crystal groups of topaz, quartz, tourmaline, etc. And the colorful amorphous specimens like malachite, smithsonite, azurite and a hundred others? Are we to pay the 20% luxury tax on these just because they *could* be cut?

A sawed slab is no criterion of cutting material either. Many polishers do nothing but 'flats' which, though beautiful, could hardly be called gems. A few collect the slabs unpolished.

We need a legal dividing line on this 20% tax uncertainty—we need it now. NOW, before the mineral collectors pay a lot of taxes where the law did not intend them to be paid and, or before the dealers unknowningly break the law by not charging the taxes.

The writer has some further discussion for a later date on ways of clarifying this situation, but enough has been said for this time.

However, thru the pages of this magazine, he invites the Department of Internal Revenue to come forth with some statements of what the law intended by that word UNCUT so that the dealers and buyers will know where they stand.

Perhaps a friendly test case could be arranged to determine what UNCUT gemstones are and where a mineral specimen ceases to be a mineral specimen and becomes gem material.

Coronadite First Found in Arizona

Coronadite is an oxide of lead and manganese, dark gray to black in color, whose hardness is 4½-5. It is massive; also occurs in botryoidal crusts with a fibrous structure. It resembles psilomelane.

Coronadite was first found in the west end of the Coronado vein, of the Clifton-Morenci copper district, Greenlee County, in southeastern Arizona. It was described by W. Lindgren and W. F. Hillebrand, (Am. J. Sci., 18 1904, p. 448) who named it after Francisco Vasquez de Coronado, an early Spanish explorer of the American Southwest.

Only two localities for coronadite are known—the Coronado vein in Arizona, and the manganese deposit at Bou Tazoult, Imini, Morocco. (1)

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1 Dana's *System of Mineralogy*, 7th edition, by Charles Palache, Harry Berman, and Clifford Frondel. John Wiley & Sons, New York, 1944, p. 742

BROOKLYN CHILDREN'S MUSEUM INSTALLS NEW TYPE OF MINERAL EXHIBIT

BY PETER ZODAC

Always to the fore in the creation and organization of the best in educational projects in mineralogy, J. C. (Jack) Boyle, has scored another hit in the designing and installation of the new Mineral Resources Room at the Brooklyn, N. Y., Children's Museum, where he serves in the capacity of mineralogist.

The exhibit is designed to acquaint both student and casual visitor alike with the position which mineral resources occupy in national economies. This is effected by placing considerable accent on the uses of minerals. This theme is dramatically expressed by the wording contained in two panels on one wall of the room, so placed as to claim the immediate attention of the visitor. These panels read as follows—

MINERALS

The most important materials of the modern world.

From them we obtain substances that enable us to enjoy many COMFORTS and CONVENIENCES, and to produce many things which add to the SAFETY, HEALTH, HAPPINESS and GENERAL WELFARE of all.—Neither the Indian nor the early settlers in America had any idea of the mineral wealth of the New World, nor of the many ways in which it could be used.

Only within the last one hundred years has this knowledge been obtained by the work of scientists and engineers.—In the past forty years, the quantity of minerals used has been greater than in the past ten thousand years of human life.

Today, two thirds of all the freight in the country consists of minerals and mineral products.

MINERALS FOR TODAY

During the past 25 years, improvements in transportation, communication, manufacturing, and many other human activities have required the use of minerals, which, before that time, were of very little service.

Within this period the use and hence, the value, of such minerals has increased very greatly.

Today, with the help of substances obtained from such minerals, we can produce better goods, see and hear over greater distances, travel more swiftly and safely, and accomplish many things that were impossible a quarter of a century ago.

In showing the progress of man which has accompanied his increasing use of minerals, the exhibit is divided into seven parts, each treated as a unit arranged in as many cases. Each unit is like a page of a book, illustrated by mineral specimens and colored photographs. A principal text in each unit gives a general overall account of the minerals and their uses, while small supplementary texts accompanying the specimens add information as to the individual species and their uses are given realistic presentation by the use of the colored illustrations.

In this way the pageant of history from a mineralogist's standpoint is briefly reviewed and it is characteristic of Jack's style that the presentation is marked by the use of the unusual and entertaining, —such as the reference to the use of malachite among the sophisticates of Ancient Egypt as eye-shadow, and the use of lead in the loading of crooked dice in Ancient Greece.

The first case which the visitor sees on entering the room is titled Non-Metallic Minerals, and covers the long span of the history of these materials from the earliest cave man to the latest in plastics. As in the exhibit in general, the minerals are presented in small groups, governed by their most important industrial uses, such as the ceramic, chemical, refractory, and other industries.

As he proceeds to review the pageant of the Non-metallics, the visitor's attention may be arrested by the exhibit of Gems and Oranaments, where he may not only be able to satisfy his esthetic sense, but may quickly learn how the beauty of nature's materials is enhanced by the art of the lapidary.

The exhibit of Iron and Steel minerals summarizes the history of one of the oldest industries of the world and presents its role, especially in the last two centuries, during which it played a decisive part in winning the Revolutionary War and in fathering the rise of American power and prosperity. The sources of the minerals used for the production of numerous steel alloys that have served to raise our standard of living to the highest in the world is a lesson in geography, illustrated by the minerals themselves and will afford food for thought to those who have concern for world conditions today as well as in the future.

The exhibit of Building Stones illustrates the function of rocks in the construction and adornment of cities. The label accompanying the exhibit will suggest answers to questions which may have occurred to the visitor who may have noticed many buildings and wondered why they were so strangely defaced, though built of material from the 'everlasting hills'.

In the case titled Non-ferrous Metals is told the story of copper, lead, zinc, and allied metals and the precious and rare metals are also included in this general grouping.

Sources of power for the machines of man are covered by the exhibit of Coal and Petroleum, which illustrates the origin and use of these materials and also includes a brief statement of the place of water-power—thus furnishing an answer to the meaning of 'Reclaimed Sunlight'.

For those who like to delve among the 'Building Blocks of the Universe' there is a case displaying a number of chemical elements. These are arranged from the viewpoint of the geologist, who, in his search for the treasures of the earth, must bear in mind their associations in nature. Doubtless this exhibit will reveal a new approach to the many who are accustomed to the usual arrangement of the chemist.

Artistically, the whole room is very attractive both in arrangement and in the color scheme employed. The fine discrimination shown in the selection of materials for inclusion in the exhibit, and the directness and simplicity of the accompanying text furnish an easy explanation of the unusual popularity of this new type mineral exhibit since it was opened last February.

MINERAL COLLECTING IN THE MIANUS GORGE

BY SAMUEL C. BROWN
Stamford, Conn.

Prominent in the U.N. news for the past months has been the proposed permanent location of this organization in the area of this scenic Gorge.

The writer, with a couple of "rock-hounds", has hiked the entire length of this scenic ravine from the Stamford, Conn., line to nearly the location of the Bedford, N. Y., feldspar quarries.

Of course our main object was in search of minerals for our collections.

Well, we were amply paid for our long and tedious hike. On the Stanwich Road side of the Gorge, near the top of the steepest part of the ravine, was an outcropping of quartz; while it has not been worked to any extent except by a few "hounds", we obtained some excellant specimens of the rose, smoky, opalescent and milky varieties.

Not far from this outcropping of quartz was a pegmatite belt. Here we found some good quality black tourmaline crystals, a number of them of fair size, but very few with perfect terminations. Some fair beryl crystals were also found among the loose talus but the ones in the ledge were hard to chisel out.

There is no doubt that if this pegmatite formations was worked many fine specimens could be found.

This Gorge is about 300 feet in depth in some places, and is probably a fault line between huge metamorphosed schist intrusions.

As it has been several years since the writer visited this locality, he cannot state the present conditions for mineral collecting; it would be well to secure permission of the property owners before trespassing.

MINERALS OF THE SILVER MINE, MISSOURI, AREA

BY ALBERT L. KIDWELL

Geologist, Missouri Geological Survey and Water Resources

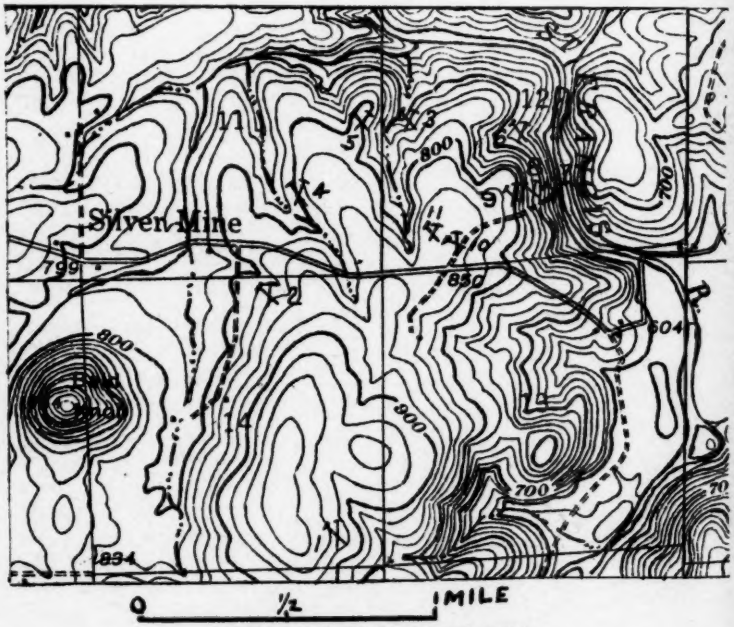
The village of Silver Mine is located in Madison County, Missouri, about ten miles due west of Fredericktown. The name is derived from the mineral deposits in the area which were originally mined for silver contained in argentiferous galena.

The country rock is pre-Cambrian granite and felsite, cut by pre-Cambrian basic dikes and steeply-dipping quartz veins. These veins contain a number of minerals which are unique for the Ozark region.

The veins have been worked by surface pits, inclined shafts, and adits. The principal workings are shown in the accompanying figure, which was taken from the U. S. Geological Survey topographic map of the Fredericktown quadrangle. Two periods of mining activity are represented here—during the earlier one, around 1880, argentiferous galena was mined; and throughout the later, from 1916 to the present, the tungsten mineral, hubnerite, has been mined.

Galena occurs in the massive form associated with the other sulphides and hubnerite. The best specimens come from the dumps at the Gabriel shaft and the River shaft and adit. It carries about 70 ounces of silver per ton of galena.

Hubnerite occurs in the quartz as imperfect bladed crystals up to eight inches long, with an excellent cleavage in one direction (010) and a good parting at approximately right angles to the cleav-



LEGEND FOR SILVER MINE AREA

1—Ozark Shaft
2—Martin Shaft
3—Henson Shaft No. 1
4—Henson Shaft No. 2
5—Killian Shaft
6—Gabriel Shaft and Adit
7—River Shaft and Adit
8—Wood Chute Adit
9—New Discovery Shaft
10—Apex Shaft No. 1
11—Apex Shaft No. 2

age. It is also found as fine-grained masses associated with the sulphides, in which case it is often mistaken for sphalerite. In some reports on the area this mineral has been called wolframite; but, because of the high manganese content, it has been more recently identified as hubnerite. The best specimens come from the Apex No. 2 shaft, the River shaft and tunnel, and the Gabriel shaft.

Pyrite is found as irregular masses with the other sulphides and as perfect cubes up to one-fourth inch wide, embedded in altered wall rock. Unbroken crystals are hard to obtain, due to the hardness of the rock in which they occur. The best crystals come from the Ozark shaft.

Sphalerite is a wide-spread mineral in the area but occurs in quantity only at the Ozark shaft. Here it is embedded in the felsite along flowage lines, giving specimens a banded appearance. It is also present as fine-grained masses with the other sulphides.

Arsenopyrite occurs as small, silvery-white crystals and grains in most of the ore. At the Ozark shaft it was seen disseminated through the basic dike rock.

Chalcopyrite occurs in small amounts and is usually found with the other sulphide minerals. The secondary mineral, malachite, an oxidation product, often occurs with it in thin layers.

Quartz is the most abundant mineral in the veins and in some instances is the only mineral present. It is most commonly massive and milky, but occassional rough crystals of both the milky and clear types are found.

Fluorite is present in small quantity as white to purple masses along veins and filling the interstices between rough quartz crystals. One specimen was found in which perfect, zoned cubes, one-fourth inch square, were deposited on quartz crystals in a vug. All of the crystals contained four zones of alternating light and dark purple fluorite.

Sericite, which is a secondary variety of muscovite, occurs as masses of microscopic scales along the contact between the veins and the wall rock. The material is light green in color and looks very much like some varieties of serpentine.

Zinnwaldite occurs as veins up to one-half inch thick near the outside of the quartz veins. The mineral is silvery-brown in color and consists of masses of individual flakes lying at right angles to the vein. It usually is associated with the sericite and is most common at the River shaft and adit.

Other minerals which are known, from microscopic examination, to occur here are topaz, cassiterite, damourite, scheelite, stolzite, and ferritungstite. Pyrrhotite and stibnite have also been reported.

Editor's Note: The locality was originally called "Einstein Silver mine" but it is now known as "Silver mine".

Trenton, N. J., Once Noted for Minerals

Trenton, a city in the western part of New Jersey, on the east bank of the Delaware River, is the capital of the state. We do not hear much now about minerals occurring around Trenton but over 100 years ago it was an important locality. In "A Catalogue of American Minerals with their Localities", by Samuel Robinson, M. D., published by Cummings, Hilliard & Co., Boston, 1825, p. 175, appears the following.

Jasper, near Trenton, of various colors.
Zircon, near Trenton, in gneiss, with greenish feldspar. This locality is at the falls of the Delaware at Trenton, about 20 yards above the eastern abutment of the bridge, in gneiss, generally in small 4 sided prisms, of a dark brownish red, imbedded in pale blue quartz, and greenish feldspar.
Basanite, at the falls, in rolled masses.

Epidote, in green 6 sided prisms.
Coccolite, in foliated limestone, and in quartz, and massive, same locality, with the zircon.

We hope that one of our readers will trace the zircon occurrence and if he is successful in finding the locality that he will send in a report on it for printing in *Rocks and Minerals.* Incidently the above mention of basanite is the first occurrence in New Jersey of this velvety black quartz.

PETRIFIED TREES OF CALISTOGA, CALIF.

BY T. ORCHARD LISLE

Readers of *Rocks and Minerals* will recall the recently published story about the Curtisite deposits at Skaggs Springs, Cal., and the earlier article on the fluorescent bookends from Mirabel mine rocks fifty miles away in which hydrocarbon deposits containing Curtisite cause the fluoresence. Also, that both the Mirabel and Skaggs Springs formations are probably connected with the volcanic eruption of Mount St. Helena in bygone ages.

Midway between Skaggs Springs and Mirabel, but slightly south like the lower apex of a triangle, is the famous petrified forest of Calistoga, where many large "stone" trees have been excavated since the first discovery was made in 1871. One tree is 126 ft. long by 8ft. mean diameter, and one of the other large specimens is 80 ft. long by 12 ft. mean diameter. The latter is broken in several places, but the pieces have retained their relative position except in one place where a sprouting oak forced it way up through. Another tree, illustrated, is only partly excavated for 120 ft., and is estimated to be 280 ft. long.

The trees are owned by Mrs. Ollie Bockie, and a modest charge is made to enter her ranch and see nature's wonders. The exact location is 12 miles northeast of Santa Rosa and 70 miles north of San Francisco, and a paved road passes the entrance.

It is necessary to go back six million years when Mount St. Helena, the highest peak in the United States, blew its top off and scattered the countryside for miles around with lava and rocks, and reduced its own height from over 22,000 ft. to under 6,000 ft. The flowing lava up-rooted and buried a forest of large redwood trees. As the millions of years passed the infiltration of silica replaced the wood in its exact form. In all the trees that so far have been excavated, the transmutation from wood to stone has been so perfect that the texture and fibre are completely preserved. Several specimens of petrified worms were found embedded in the wood, as well as numerous imprint of fossilized leaves in the lava

When the writer visited the Calistoga petrified forest in 1942 he got into con-

The Monarch or Tunnel Tree buried under wall of lava 90 feet deep, now excavated 126 feet.
Estimated length of this huge petrified tree is 280 feet and diameter 8 feet.

versation with a man who was sitting on the porch of Mrs. Bockie's house. He turned out to be a rockhound. He produced from his pocket two of the finest cabochon cut star sapphires that the writer has ever seen, regardless of the large number now on sale at Fifth Avenue jewelers in New York. However, he would not say where he had found them. The color was very good, the crystals were clear and the stars very pronounced.

Calistoga is a health resort. It is beautifully located in hilly and well-wooded country of western Napa County, (western California) and is known for the curative value of its hot springs and hot mud baths. Near by there are a number of geysers. The entire district is dotted with quicksilver mines, which have been worked on and off for nearly a century, and about three miles away there is an active silver mine which the writer visited in 1941.

"ME AND PA." TWO OLD ROCKHOUNDS.

Dear Editor;

Pa just came in from the shop (Garage) and shouted, 'It works better than I thought it would."

Far be it for me to let on that I did not know what "The It" referred to because I knew that he would go into detail of what IT was and how it worked providing I laid aside my book and let him know that I was deeply interested. So he did and I will give it to you in his own words.

"You see, Ma, I explained that I used a mirror to get my dop stick at right angles to the stone when mounted by laying the mirror flat on the table and standing the mounted stone, with dop stick attached while the wax was still warm, and aligning the stick with its reflection in the mirror and it was easily straightened. Now here is the way I used the mirror idea in the shop. As I have no faceting machine I have had trouble getting true bevels on my oblong and square stones but I now have it mastered. I took that strip of mirror, about 8" long by 3" wide, and drew straight paralled lines accross the narrow way with red wax crayons. Then by placing it below my vertical lap I used the reflection of the dop stick to give me my angle on the edge of the stone as I ground the bevel. All I had to do was to hold the unit near the wheel face and decide what angle I thought correct, then adjust the mirror so that the parallel lines were right with the dop stick. I could then watch the reflection and keep it true while I slid the stone up and down across the lap. In examining the results all I had to do to cut evenly from one end to the other on the bevel was to tip the handle up or down according to which was needed but always kept line of cutting vertical."

'IT' must have worked perfectly because Pa just showed me the results of his experiment on an oblong brooch he beveled and I am compelled to admit that IT is, as he said, "A perfect substitute for a faceting machine."

As I noticed that Pa had his face buried in the "Revised Lapidary Handbook', by Howard, I was sure that he would not have anything further to say but I was mistaken, for in going over the pages of that book he said,

"Something I read recalls to mind an idea that helps to get those scratches out while using the lap. You see, Ma, I have always had trouble in being able to see whether I had all those scratches out before taking the next step in my work but now while lapping a stone I have the sander going and after wiping the stone I touch it on the sander and it sure exposes those scratches that were hard to see before."

Now that Pa has slipped his 'specks' back to reading position I am sure that the above book will keep him quiet for a while at least. So long as Pa has his glasses in a precarious position on the end of his nose I know better than to let my attention wander from the source of new ideas that may be of interest to readers of *Rocks and Minerals*. For the present will close,

Just Me,
Of the Two Old Rockhounds

The Amateur Lapidary

DESIGN FOR A BROOCH

BY LUCILLE SANGER

1922 Newport Avenue, Chicago 13, Illinois

For the amateur jewelry maker who is tired of decorating bezels with twisted wire, there is fun to be had in trying a different type of ornament.

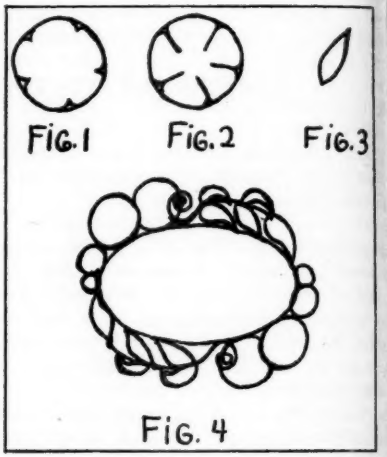
A brooch is a good piece to begin with since it is easier to make a bezel for a larger stone than for a small one and thus leaves the silversmith free to concentrate on the design.

To paraphrase the old cooking recipes, first get your stone. As someone once remarked there are several ways to do this: pick it yourself, buy it, trade for it or steal it. Having solved this problem, the next step is to cut and polish it to a nice oval shape about an inch and a half long.

The model was made in apple green jade but any attractive stone will do as well. Choose a plain stone as a patterned one would have to compete with the silverwork. The result should be a colorful stone, the beauty of which is greatly enhanced by the ornamentation.

Instructions on how to make a bezel are given in many books and articles on silverwork so it will not be gone into here. Make the bezel with the back sawed out leaving just enough rim on the back to hold the catch and joint. Use twenty-two gauge silver for this. File the bottom so that it is smooth and even and file off any unnecesary material for the width of the bezel.

On twenty-six gauge silver draw 4 circles a little smaller than a dime or about one-half an inch in diameter. Saw these circles out or cut them out with scissors. Draw notches around the edge as in figure 1. Cut the notches out with the scissors. Draw lines from the notches toward the center so that a blossom is formed but the center remains intact as in figure 2. File the blossom edges until tney are smooth and natural looking.



Place the right side up on the pitch block and, with a round repousse tool, indent the centers. Remove and clean the surface with alcohol and place them face down on the block. Raise the blossom with the same tool. Remove and turn them right side up, using a small pliers bend the edges at the notches upward so that the blossom assumes a natural look.

Cut two pieces of twenty-two gauge wire about two inches long. From twenty-six gauge sterling cut ten leaves as in figure 3. These should be from one-fourth to five-sixteenths inch long. Solder one leaf to an end of wire and two on each side below it, opposite each other. Repeat for the other leaf. Now place them on the pitch block upside down and raise the leaves with the repousse tool. Turn them right side up and with the pliers, bend the ends so that they turn up in a natural manner. Using round nosed pliers curl the stem ends into coils then pull them out slightly and push

them to one side, away from the leaves. The object is to make an artistic and natural looking tendril. Curve the spray so that the tip will come in to the brooch, the center will curve out from it and the stem curl come in to the bezel.

When both sprays are ready make four small balls of silver. Solder one into the center of each blossom. Make two more a little larger than these and two more still larger. Fit the ornaments around the bezel as in figure 4. See that each leaf on the inside of the spray touches the bezel and solder at that point. When the blossoms are in place, remove and file the edge slightly where they touch the bezel. This flatness will give a better fit. Solder the remaining ornaments in place, letting the stem curl come over the edge of the nearest blossom. At each end of the pin, solder the balls of silver, placing the larger ones next the end blossoms.

Turn the piece over and hard solder the joint and catch into position. Pickle and polish. Wash in warm suds, rinse and dry. Attach the pin.

If ready-made pins are not available, use wire of nickel silver which can be bought for that purpose. Use the pliers to bend a tiny circle on one end and just large enough to admit a piece of wire for a rivet, or a straight dressmaker's pin. If a dress pin is used for a rivet, cut it off just below the head, leaving only enough wire to go through the joint and pin holes. If a piece of wire is used for a rivet, tap one end of it with a hammer using an outward motion to form a rivet head. Cut the wire and push through the three holes, leaving enough for this purpose and for forming a head on the other side. Lay the piece next to the anvil so that the joint is on the anvil with the rivet head up. Hammer the rivet to form the head on the opposite side. Now cut the wire the proper length to fit into the catch. File to a point, and smooth with emery paper. Polish with jeweler's rouge by hand.

Take a block of wood, preferably one an inch thick, and cut two holes in it the proper distance apart to hold the joint and catch of the pin, with a tunnel between for the pin wire. Place the mounting on the wood, fitting it into the holes so that it rests firmly on the block and set the stone. When the stone is set, give the brooch a final polish and it is ready to wear.

A Sphere Will Solve Your Problem!

If you have a piece of material in which you suspect there is either chatoyancy or asterism (cat's eye or star) do not cut piece after piece from the original trying various cabochons—only to find nothing.

Cut a cube from the material, study its grain so that you will not forget it. Then make a sphere from the cube. If there is either a star or a cat's eye you will have found it quickly. Then you can cut two cabochons from the sphere.

W. B. S. Thomas M. D.
Dover-Foxcroft, Me

Turquoise in Mexico

Turquoise has been known to occur in Mexico for hundreds of years, having been mind by the Aztecs long before the conquest of the country by Cortez. The Mexican turquoise is as fine in quality and color as the famed gems from Persia.

The best known turquoise mine in Mexico is the Santa Rosa, near the town of Bonanza, state of Zacatecas. Here the turquoise occurs in veins and nodules.

Arizonite Found Only in Arizona

Arizonite is a dark steel-gray titanate of iron found at only one locality in the world—in the Aquarius Range 25 miles south of Hackberry, in northwestern Arizona. Hackberry is in the central part of Mohave County.

Arizonite was discovered on the mining claim of A. G. Alm, 25 miles south of Hackberry, where it occurred in pegmatite and associated with gadolinite. It was described by Chase Palmer (Am. J. Sc. 28, 1909, p. 353) who named it after the state in which it was found.

Club and Society Notes

CALIFORNIA FEDERATION CONVENTION

BY EDWIN V. VAN AMRINGE

Orlin J. Bell, Oakland attorney and a leader in the East Bay Mineral Society, was elected president of the California Federation of Mineralogical Societies at a noon meeting, Saturday, June 15, 1946, of delegates and directors to the Glendale Convention. Jack Streeter, retiring president of the Mineralogical Society of Southern California and general chairman of the 1946 Convention, was elected vice-president; Dorothy Craig, secretary; Modeste Leonardi, of the Searles Lake Gem and Mineral Society, treasurer; and Paul VanderEike of Bakersfield was re-elected editor of *Mineral Notes & News*.

A capacity crowd of 550 attended the Federation banquet on Saturday evening at the Los Angeles Breakfast Club, and had the pleasure of hearing a summation of past events from the retiring president, C. D. Woodhouse, a sketch of future plans from President Bell, and words of greetings from Ernest Chapman, past-president, and from Henry C. Dake of Portland, Oregon, editor of *The Mineralogist*. Convention Chairman Streeter introducted the chairmen of the various committees responsible for the success of the convention:—P. E. Linville, Edwin V. Van Amringe, H. S. Hill, W. J. Perkin, L. W. Vance, W. J. Rodekohr, and Mrs. Mary Wheeler, and also notable visitors from all parts of the country. The evening culminated in the distribution of door-prizes, a raffle and a most spirited auction conducted by Ralph Dietz and Harry Rhorer, of oustanding material donated by the various commercial exhibitors for the benefit of the Federation.

The convention, marking the tenth anniversary of the Federation, and the fifteenth of its host society, the Mineralogical Society of Southern California, exceeded in size and completeness of displays all previous meetings. The commercial exhibits in particular were of the highest quality and evidenced the remarkable advance in mineralogical activity during the war period, especially in the lapidary and fluorescent branches.

On Saturday morning June 15th, the committee of judges, consisting of T/[illegible] Dora Anderson, W. A. C., of the Sequoia Mineral Society and an expert in lapidary work for rehabilitation, Clementi Urrutia, well-known professional gem-cutter of Los Angeles and Leon Owen of Glendale announced the exhibit winners, as follows.

Class I—Society Collections—First prize was won by the large and beautiful displays of the Southwest Mineralogists of Los Angeles. Second prize went to the East Bay Mineral Society of Oakland, and third to the new San Fernando Valley Mineral and Gem Society, which meets in North Hollywood. Honorable mention was awarded the exhibits of the Kern County Mineral Society of Bakersfield and the Los Angeles Mineralogical Society. Other organizations competing included the Long Beach Mineralogical Society, the Pacific Mineral Society of Los Angeles, the San Diego Mineralogical Society, the Santa Barbara Mineralogical Society, the Santa Monica Gemological Society, the Searles Lake Gem and Mineral Society of Trona, and the West Coast Mineral Society, meeting in Fullerton. The beautiful display of the Mineralogical Society of Southern California of Pasadena, arranged by Earl Calvert, was not entered for competition.

Class II—General Mineral Collection—First prize was won by Theodore Gish, a 14-year old Los Angeles boy, member of the M. S. S. C. Second prize went to Mr. & Mrs. Harry Rohrer of Pasadena; third to J. R. Sherman of Wilmar, and an honorable mention to W. A. Ross of San Diego.

Class III—Crystals—First and only prize awarded was won by Earl Olmstead of San Diego, for a fine display from

Mesa Grande.

Class IV—Cabochons and Polished Flats—First prize went to the fine display of local material, the work of Walter Lauterbach of the Mojave Desert Mineral and Gem Society of Barstow. The beautiful work of Mrs. Quita Ruff of the M. S. S. C. took second place, while third went to Eddie Redenbach of Trona. R. E. Heidrich won an honorable mention.

Class V—Facetted Stones—The first and only award was to Burr N. Porter of Oakland.

Class VI—Novelties—The highest award went to O. C. Barnes of the Southwest Mineralogists for his marvelous display of a complete set of dishes and a lamp cut from Death Valley onyx. Frank A. Fahr of Pasadena won an honorable mention in this class.

There were no awards in Class VII —California Minerals—and Class X—Educational Exhibits—and only one in Class VIII—Minerals from Los Angeles County—to J. M. C. Johnson of Pasadena.

Class IX—Jewelry Craft—The only award was an honorable mention to O. P. Avery of the M. S. S. C.

Class XI—Fluorescent Minerals—First and only prize went again to young Theodore Gish.

Class XII—Rare Minerals and Unusual Localities—The only award was a second honorable mention of W. A. Ross.

One of the features of the show was the opportunity of viewing a few of the choice specimens from the cabinets of three well-known collectors, Ernest Chapman and Willard Perkin of the M. S. S. C. and Mrs. Max Hirsch, formerly of Los Angeles, now of Mariposa, Calif. These were not in competition. Throughout the three days of the convention, crowds watched H. G. Kirkpatrick, assisted by Ben Maben, demonstrate lapidary procedures, and the daily showing of motion pictures relating to mineralogy and geology were well attended.

(The Convention was held in Glendale, Calif., June 14-16, 1946)

Van Amringe New President of Rift Club

Edwin V. Van Amringe, asst. prof. of geology at Pasadena Junior College, has been elected president of the Rift Club, succeeding Dr. William C. Putnam of U. C. L. A. Kenneth Garner of San Bernardino was re-elected secretary-treasurer. The Rift Club is an informal association of geologist interested in the study of faults, and was founded by the late Professor William Morris Davis, "father of American physiography."

Pacific Mineral Society

A dinner meeting of the Society was held on July 12, 1946, at the Eleda Restaurant in Los Angeles, Calif. The speaker was Norman Whitmore, a mining engineer, whose subject was 'Tommy-knockers of the mines."

Monterey Bay Mineral Society

At our June 10th, 1946, meeting in Salinas, Calif., Mr. C. A. Morrison of the New Products Division of the Linde-Aire Products Company in Oakland, gave an excellent talk on "Synthetic Crystals" and showed samples of synthetic rubies, sapphires, and spinels. Miss Ruth Hacking and Miss Alice Everett, both of Santa Cruz, showed their beautiful color movies of the Society's field trip to the dolomite mine, and colored slides of their desert tours. A 9 unit raffle of beautiful mineral specimens donated by C. H. Abbe and L. E. Roe of Hollister, H. M. Samuelson, and A. W. Flippin of Salinas, and Chucawalla Slim the travelling "Rockologist" of California. A nominating committee made up of Miss Ruth Hacking, Mr. H. M. Samuelson, and Dr. K. W. Blaylock was appointed by the president, William O. Eddy, to report the list of nominees for next year's officers at the July meeting. A display of silver and gold ore specimens was set up and donated to the Society by I. D. Herman of Salinas.

Mrs. A. W. Flippin, Secretary

Boston Mineral Club

A regular meeting of the Club was held on July 9, 1946, at the American Academy of Arts and Sciences, Boston, Mass. The speaker was Arthur Montgomery whose subject was "Mining and Mineralogy of the Harding Mine", illustrated with colored slides. The Harding Mine, near Taos, N. Mex., was a phenomenal producer of tantalum as well as of beryl and spodumene; Mr. Montgomery operated the mine from 1942 to 1945.

Maine Mineralogical and Geological Society

The 2nd field trip of the Society for the season was held on June 30, 1946, to Black Mt., Rumford Me. The locality is noted for its pegmatite minerals.

Queens Mineral Society

The Queens Mineral Society held its regular monthly meeting on July 11, 1946, at the Church of the Resurrection, Richmond Hill, N. Y. Future programs were discussed. At the August meeting Mr. Pfeifer will discuss the minerals of Pine Island, N. Y., as a preparation for a field trip there in the fall. At the September meeting club members will present outstanding specimens which they will have collected during the summer. At the October meeting Mr. Maynard will describe the collecting he has done in Florida. In November the Society will visit the Picker x-ray laboratory

Mr. Marcin, a club member, in preparation for the field trip to be made on July 21st, gave an interesting and instructive talk on the geology and minerals of Trumbull, Conn.

Ruth Grothur, Sec'y.

Los Angeles Lapidary Society

New officers were installed in July. They are:

President ..... Benton MacLellan
1st Vice Pres. .... John E. Gaston
2nd Vice Pres. ..... Jessie Quane
Secretary ..... Mary C. Ryan
Treasurer .. Clarence H. Chittenden
Historian ..... Lelande Quick

The Society now has a permanent address and anyone wishing to write us many do so. The address is P. O. Box 2184, Terminal Annex, Los Angeles 54, Calif.

Interesting pictures of Yosemite Valley rock formations were shown at the July meeting. At the August meeting Mr. McPhail of Standard Oil Company will show movies of Alaska and the Great Tetons.

Grace Peters, Publicity.

Mineralogical Society (London, England)

During July, 1946, the Society held a four day field trip to some north of England Localities as follows:

Tues. July 2nd. Rotherhope Fell lead mine, baryto-calcite locality at Blagill, and the lead-zinc dumps at Nenthead were visited.

Wed. July 3rd. New Brancepeth Colliery was visited where a barite vein, with subordinate witherite, occurs in the coal mine. The witherite dressing plant and the barium chloride works of Holmside and South Moor Colliery Co. Ltd. were also visited.

Thurs. July 4th. Visit made to the underground workings of Stanehopeburn fluorspar mine and to the sphalerite-siderite deposits near Wynch Bridge.

Fri. July 5th. Inspection of anhydrite mine at Billingham.

Colorado Mineral Society

The 3rd field trip of the Society for the season was held on July 31, 1946, to the Crystal Peak gem mines district near Florissant, Colo. Amazon stone, goethite, phenacite, smoky quartz, topaz, etc. occurs at the locality.

This was a joint trip with the Colorado Springs Mineralogical Society.

Pomona Valley Mineral Club

The POMONA VALLEY MINERAL CLUB enjoyed their first field trip on June 2, 1946 going to Cascade Canyon in the San Gabriel Mountains. Accompanied by Mr. and Mrs. Laudermilk, they made the rugged climb to the old lapis mine which is at an elevation of approximately 5,000 feet. besides acquiring several specimens of lapis, other minerals found within the walls of the North and South forks of the canyon were: fuchsite, tremolite, hematite, corundum crystals, serpentine and graphite. Mr. Laudermilk, well-known writer for *Desert Magazine*, collected some fine botanical specimens while Mrs. Laudermilk was seen stopping along the trail to focus her camera on some particular subject or vista.

The regular meeting of the Club held on June 11, had a large attendance. Guest speaker for the evening was Mr. George J. Bellemin, instructor in Geology at Claremont College and painter of desert pictures. He delighted his audience with a talk on "Cascade Canyon Minerals." Cascade Canyon can be regarded as one of the unusual mineral localities of Southern California. It is located in the San Gabriel Mountains. The approximate elevation of the mineralized area is between 4500' and 5500'. At least twenty minerals can be easily collected in this canyon area. Of these five are unusual; lapis lazuli, malacolite, corundum, hydrotroilite and phlogopite.

The following are the new officers chosen for the year: President, Fred W. Kroger. Vice-President, Earl Knie, Secretary, Mrs. James Kryder; Treasurer, Mrs. David Bradfield. Board of Directors: Wilson E. Thompson, L. M. Frantz, Hollis B. Page.

Edythe M. Thompson, Pub. Chm.
385 W. Second St.
Pomona, Calif.

New Jersey Mineralogical Society

A field trip of the Society was held on June 30, 1946, to the noted iron mines at Cornwall, Penn. The mines are especially noted for their iron and copper minerals.

Pomona Valley Mineral Club

Instead of the regular monthly meeting in July, the POMONA VALLEY MINERAL CLUB held a picnic in LaVerne on Sunday, July 7. Following luncheon, displays of recently acquired specimens and newly-cut faceted stones were displayed by various members. Reports on activities at the recent Convention of the California Federation of Mineralogical Societies held in Glendale, California, furnished the program. Mr. Page, the Club's Director, read a report of the business meetings held at the onvention. Mr. Thompson described the commercial displays. Mr. Kroger, President, reported on the exhibits displayed by the various Societies that were represented, naming the Societies that won the prizes.

Edythe M. Thompson
Pub. Chm.

WITH OUR DEALERS

Need any grinding wheels or sanding cloths? The Keweenaw Agate Shop, of Ahmeek, Mich., have them in stock.

The Cone Lap is a simple machine for more precision shaping of rounds, ovals, rectlinears, concaves, and convex cabochons, announces the Mountain Gem & Supply Co., of Durango, Colo.

A cordial invitation is extended to mineral collectors to drop in and inspect the new displays and sale quarters of Roberts & Stevens, of Monterey Park, Calif.

Mackayite and other rare tellurium minerals may be obtained from Hatfield Goudey, or Yerington, Nev.

Louis Reamer, of Orange, N. J., specializes in fluorescent minerals. He has an attractive set of miniature fluorescent minerals.

The Western Mineral Exchange, of Seattle, Wash., invite all rockhounds to call on them when they visit the city. A huge stock of minerals, lapidary equipment, etc., is available for inspection.

Some nice agatized petrified wod can be obtained from C. A. Tim, of Salem, Ore., a new advertiser.

Bet your collection doesn't boast a specimen of simpsonite, the new and rare aluminum tantalate. Schortmann's Minerals, of Easthampton, Mass., has some in stock.

A new advertiser, Mineral & Gem Dealers, of Asheville, N. C., offer some gemstone bargains.

Quartz varieties, many of the rarer types, can be obtained from Yaquina Gem Shop, of Newport, Ore.

E. Mitchell Gunnell, of Denver, Colo., has a long list of interesting pseudomorphic crystal specimens.

Adamite, from a recent discovery in Mexico, is offered collectors by the Mineral Foundation, of Tucson, Ariz., a new adverstiser.

Brown Mineral Research of Florence, Colo., have some interesting minerals for the collector-student—laboratory.

Another new advertiser is Art's Gem Shop, of Gallup, N. Mex., who can furnish jewerly of every description made by expert Navajo Indian silversmiths.

Charles A. Thomas, of Royersford, Penn., speciallizes in fluorescent minerals; he has a nice stock of them.

Need any cutting matrial and equipment? A. L. Jarvis, of Watsonville, Calif., can supply them.

A new mineral house is Burminco, of Monrovia, Calif., also a new advertiser, who features 5 choice minerals.

And still another new advertiser is Hugh H. Millar, of Detroit, Mich., who features fine gem-quality tiger eye from South Africa.

Some more superb Texas gem agate is offered cutters by Frank Duncan and Daughter, of Terlingua, Texas.

A number of attractive tourmalines and other minerals, also fossils, are featured by Graffham's Commercial Museum, of Ottawa, Kans.

Arthur & Lucille Sanger, of Chicago, Ill., can supply more specimens of their rough gem material. Better order some before it is all gone.

Greiger's, of Pasadena, Calif., announces the arrival of some very fine gem material from Brazil. See their ad.

Items such as gem drills, hole saws, drum sanders and polishers and other Lapidary equipment may be obtained from the Lapidary Equipment Co., of Seattle, Wash.

Every collector can use a binocular loupe—for sale by Lloyd M. Demrick, of San Francisco, Calif.,

Amethysts and other collectors items are featured by Ward's Natural Science Est., of Rochester, N. Y.

Excellent specimens from Los Lamentos, Mexico, and vicinity, can be obtained from the Wiener Mineral Co., of Tucson, Ariz.

Mrs. B. F. Nonneman, of Salinas, Calif., has another list of gem quality cutting material.

If you are in need of custom diamond sawing, contact Forrest L. Parmenter, of Charlestown, N. H.

Need a diamond drill for your gem cutting? See the ad of E. H. Shumaker, of Chicago, Ill.

A. G. Praser, Inc., of New York City, have in stock a number of good gem minerals.

For Arizona agates and minerals, contact Mrs. MaryAnn Kasey, of Prescott, Ariz.

Thompson's Studio, of Pomona, Calf., features fluorescent specimens that contain gold.

More fine minerals are listed this month by Hugh A. Ford, of New York City.

WORLD'S FINEST STIBNITES COME FROM JAPAN

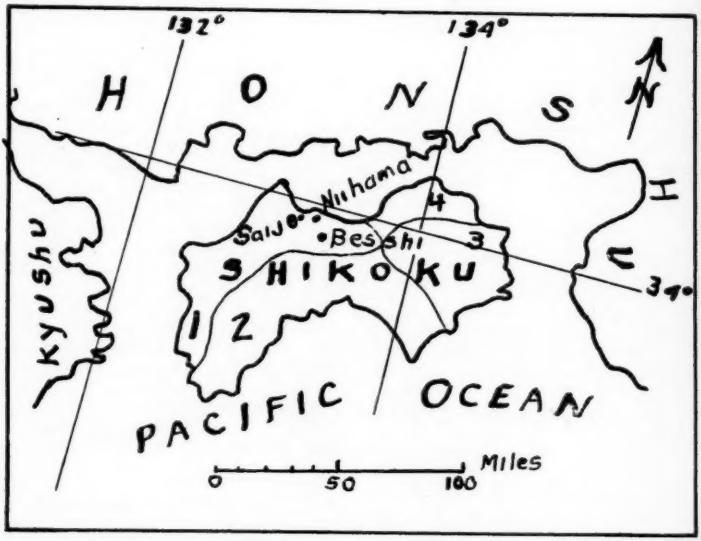
Stibnite, the chief ore of antimony, is antimony sulfide, and is found in many countries; the world's principal deposits are in China.

The finest crystals of stibnite, however, are found in Japan, on the island of Shikoku, and the Yokohi mine in Ichinokawa (now exhausted) furnished the largest and most beautiful specimens known. Some of the crystals were more than 2 feet long and being lead-gray in color, slender, and highly lustrous, resembled polished swords.

The stibnite occurs in veins, containing quartz and calcite, traversing sericite schist. The finest crystals came out during the period from 1882 to 1886 when the Yokohi mine was at its peak of prosperity and most of them were exported to Europe and America.

Iyo Province (Ichinokawa is in its northern part) still furnishes nice crystals of stibnite and no doubt it will prove a popular locality for many collectors in our armed forces who may be stationed on the island.

Ichinokawa is about 4¼ miles east of Saijo, a little city near the northwestern coast of Shikoku. The geographical position of Saijo is 33° 50' N. Lat. and 133° 10' E. Long.



Sketch map of Shikoku, Japan's third largest island, showing location of Saijo, near the northwestern coast. Iyo Province is now known as Ehime or Ehime-ken, Awa as Tokushima or Tokushima-ken, Sanuki as Kagawa or Kagawa-ken, and Tosa as Kochi or Kochi-ken. These provinces are numbered 1, 3, 4, and 2 on the map.